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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,929	10/20/2003	Soichi Yamazaki	Q78071	8325

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,929

Applicant(s)

YAMAZAKI ET AL.

Examiner

Janis L. Dote

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26, 28 and 30-61 is/are rejected.
- 7) ☒ Claim(s) 27 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/22/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. The disclosure is objected to because of the following informalities:

(1) The letter "e" is missing from words through out the specification, e.g., at page 2, line 2, in the word "r latively," at page 77, line 3, in the word "carri r," etc. Applicants should correct the omissions.

(2) The use of trademarks, e.g., Henschel mixer [sic: HENSCHEL MIXER] at page 65, line 8, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

2. The examiner notes that Tables 1-3 are not part of the 127 pages of the specification or of the drawings, but have been placed in an appendix to the specification. The tables were not printed in the published application US 2004/0137350 A1. To

ensure the incorporation of Tables 1-3 in any future publication, the examiner suggests that applicants amend the specification to include Tables 1-3 in the body of the specification.

3. The examiner notes that the instant specification in the paragraph bridging pages 25 and 26, discloses that the index of crystallinity is determined by the equation $\Delta T = T_{mp} - T_{ms}$, where T_{mp} (°C) represents "the peak central value of the endothermic peak obtained when a melting point is measured according to differential scanning calorimetry (DSC), and T_{ms} (°C) represents the shoulder peak value of depth." According to the instant specification, a "smaller value of ΔT means higher crystallinity."

4. Claims 36-47 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants are required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 1 is drawn to a toner. The recitation "wherein the toner is to be used with a fixing device . . ." in claims 36-47

Art Unit: 1756

is merely a statement of intended use, which does not limit the composition of the toner. Accordingly, the particulars of the fixing device recited in instant claims 36-47 do not further limit the toner composition recited in instant claim 1.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 48 and 61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 48 and claim 61, which depends from claim 48, are indefinite in the phrase "[a] fixing device for fixing the toner claimed in claim 1 onto a recording medium" because the claims do not recite any structural component. The recitation "for fixing the toner . . ." is a statement of intended use. Thus, it is not clear what apparatus components are encompassed in the fixing device or in the image forming apparatus.

Art Unit: 1756

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 48 and 61 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 48 is drawn to a fixing device but fails to positively recite any structural components of the apparatus. Claim 61 is drawn to an image forming apparatus comprising said fixing device. The recitation "for fixing the toner claimed in claim 1 onto a recording medium" is a recitation of intended use, and which does not provide any structure to the fixing device. Thus, the claims are not proper apparatus claims under 35 U.S.C. 101.

7. Claims 15 and 49 are objected to because of the following informalities:

In claim 15, at line 2, there is an extraneous period "." in the phrase "component_ and 80 mol% . . ." (emphasis added).

In claim 49, at line 6, there is an extraneous period "." in the phrase "fixing nip part_ from the fixing roller" (emphasis added).

Art Unit: 1756

Appropriate correction is required.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Art Unit: 1756

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

11. Claims 48-61 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,839,537 B2 (Mouri).

Mouri discloses a fixing device comprising a fixing roller 21, a pressure roller 22, a peeling member 31, i.e., releasing member, for the fixing roller 21, and a peeling member 32, i.e., releasing member, for the pressure roller 22. The fixing roller 21 and pressure roller 22 form a fixing nip portion. The peeling members are used to remove a recording medium after the recording medium passes through the fixing nip portion from the fixing roller and the pressure roller. The peeling members are arranged on the downstream side in the feeding direction of the recording medium to the nip portion and extend along the axial direction of the fixing roller and the pressure roller. Col. 2, lines 45-62, and col. 5, line 62, to col. 6, line 55; and Fig. 3. The fixing device in Fig. 3 meets the fixing device limitations recited in instant claims 48, 49, 52, 53, 56, 58, and 59. Mouri discloses at col. 5, lines 34-37, that the fixing roller and pressure roller are arranged in a horizontal position, which meets the fixing device limitation

Art Unit: 1756

recited in instant claim 54. Mouri teaches that the peeling members are "plate-shaped" as recited in instant claim 51. Col. 6, lines 23-36. Mouri discloses at col. 3, lines 8-12, that the alignment angle θ of the peeling member 31 of the fixing roller 21 is set in a range of -5 to $+25^\circ$ relative to the tangent line of the outlet of the fixing nip part, which meets the limitation recited in instant claim 57. Mouri also discloses that the peeling member 31 is disposed such that there is a gap between the fixing roller 21 and the peeling member 31 as recited in instant claims 55 and 60. Col. 3, lines 22-35. Mouri also discloses an image forming apparatus comprising said fixing device. See Fig. 1.

Mouri does not disclose the functional limitation that the fixing device has a recording medium feed speed of 0.05 to 1.0 m/s recited in instant claim 50. However, "[a] claim containing a 'recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus' if the prior art apparatus teaches all the structural limitations of the claim." MPEP 2114 and cases cited therein. Accordingly, the functional language regarding the feed speed recited in the instant claim does not distinguish the apparatus disclosed by Mouri.

Art Unit: 1756

Mouri does not disclose the particular toner recited in the instant claims. However, the instant claims do not positively recite that the fixing device or the image forming apparatus comprises the particular toner. Instant claim 48 merely recites a "fixing device for fixing the toner claimed in claim 1 onto a recording medium." The particular toner recited in instant claim 48 does not distinguish the structural elements in the instantly claimed fixing device or image forming apparatus from those in the fixing device and apparatus in Mouri. A material (i.e., the toner) worked upon by the apparatus does not limit the apparatus claims. "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." See MPEP 2115. It is well settled, as stated in Ex parte Masham, 2 USPQ2d 1647, 1648 (Bd. Pat. App. & Int. 1987) that "a recitation with respect to the material intended to be worked upon by a claimed apparatus does not impose any structural limitations upon the claimed apparatus which differentiates it from the prior art apparatus satisfying the structural limitations of that claimed." Accordingly, the particular toner recited in the instant claims does not distinguish the instantly claimed fixing device and the image forming apparatus from the fixing device and image forming device in Mouri.

Art Unit: 1756

12. Claims 1-6, 8-23, 31, 33, and 36-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/084408 A1 (Matsumura) combined with US 5,858,596 (Tajima) and US 5,738,964 (Uchida).

US 2004/0132920 A1 (US'920), filed under 35 U.S.C. 371, is the national stage of the WO application of Matsumura, and therefore is presumed to be an accurate English-language translation of the WO application of Matsumura. 35 USC 371(c)(2), 372(b), and 365(c). See US'920, the translation of Matsumura, for cites.

Matsumura discloses a first toner comprising 100 parts by weight of toner particles and 1 part by weight of hydrophobic silica particles. The toner particles comprise 100 parts by weight of a polyester binder resin, 1 part by weight of a charge control agent, and 5 parts by weight of a colorant. The polyester binder resin comprises two components: (1a) 15 parts by weight of a polyester block copolymer; and (2a) 85 parts by weight of a non-crystalline, i.e., amorphous polyester resin. In other words, the weight ratio of the polyester block copolymer (1a) to the amorphous polyester resin (2a) is 15:85, which meets the weight ratio ranges recited in instant claims 4 and 19-21. The toner particles have an average particle size of 10 μm , which is within the size limitation recited in instant

Art Unit: 1756

claim 33. Paragraphs 0309-0312 and Table 7 at page 28, example 19. The amount of the polyester binder resin meets the amount range recited in instant claim 22. The hydrophobic silica particles meet the external additive limitations recited in instant claims 23 and 31. Matsumura discloses that the color of the binder resin is colorless. Table 7, example 19. According to Matsumura, when the block polyester copolymer (1a) and the non-crystalline polyester resin (2a) are compatible, the resultant binder resin is colorless. US'920, paragraph 0139. Thus, the block polyester copolymer (1a) and the non-crystalline polyester resin (2a) are "sufficiently soluble with each other" as recited in instant claim 17.

The block polyester copolymer (1a) itself comprises 30 wt% of a crystalline block and 70 wt% of a non-crystalline, i.e., amorphous, block. The crystalline block is obtained by condensation of 120 moles of the aliphatic diol ethylene glycol with 100 moles of terephthalic acid. The crystalline block has a weight average molecular weight of 50,000. The amorphous block is obtained by condensation of 100 moles of dimethyl terephthalic acid with 60 moles of neopentyl glycol as a branched monomer component and 60 moles of ethylene glycol. The amorphous block has a Mw of 140,000. US'920, Table 7, example 19. Based on the information provided in Table 7, the

Art Unit: 1756

block copolymer comprises about 54 mole% of the crystalline block, which meets the amount range recited in instant claims 5 and 19. The block polyester copolymer meets the block polyester compositional limitations recited in instant claims 5, 6, 8-10, 14, and 19. The block polyester copolymer (1a) has a Mw of 100,000, which is within the range recited in instant claim 13. The block polyester copolymer has a crystal melting point of 238°C, which is within the melting point range of 190°C or higher recited in instant claim 11. See Table 7, example 19.

The non-crystalline polyester resin (2a) component of the binder resin is obtained by condensation of 95 moles of dimethyl terephthalic acid and 5 moles of dimethyl isophthalate with 60 moles of neopentyl glycol as a branched monomer component and 60 moles of ethylene glycol. US'920, Table 7, example 19. The non-crystalline polyester resin (2a) meets the compositional limitations recited in instant claims 3, 15, and 17. The non-crystalline polyester resin (2a) has a Mw of 18,000, which is within the range recited in instant claim 16. See Table 7, example 19. Matsumura further discloses a fixing device which fixes an unfixed toner image on a recording medium where the toner image is formed from the toner in example 19 of Matsumura. US'920, paragraphs 0284-0285 and Table 7, example 19.

Art Unit: 1756

Matsumura discloses that the toner exhibits excellent low temperature fixation performance, high temperature offset resistance, and anti-blocking performance. The toner exhibits satisfactory color development. US'920, paragraph 0016 and Table 7, example 19.

Matsumura does not disclose that the non-crystalline polyester resin (2a) component has a crystallinity lower than that of the block polyester copolymer (1a) as recited in instant claim 1. Nor does Matsumura disclose that the melting point of the block polyester copolymer (1a) is higher than the softening point of the non-crystalline polyester resin (2a) component as recited in instant claim 2. Nor does Matsumura disclose that the block polyester copolymer (1a) has a heat of fusion as recited in instant claim 12 or the softening point recited in instant claim 20. However, as discussed above, the Matsumura block polyester copolymer (1a) comprises about 54 mole% of a crystalline block and meets the compositional limitations recited in instant claims. The Matsumura non-crystalline polyester resin (2a) component meets the amorphous polyester compositional limitations recited in the instant claims. Accordingly, because the Matsumura block polyester copolymer (1a) and the non-crystalline polyester resin (2a) component meet the compositional limitations recited in the

Art Unit: 1756

instant claims, it is reasonable to presume that the Matsumura block polyester copolymer (1a) and non-crystalline polyester resin (2a) component have the properties recited in instant claims 1, 2, 12, and 20. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Matsumura does not disclose that the toner in example 19 has an acid value of 8 KOHmg/g or less as recited in instant claim 1. Nor does Matsumura disclose that non-crystalline polyester resin (2a) component has an acid value of 3 to 15 KOHmg/g as recited in instant claim 21.

However, according to Tajima, it is well known in the toner art that the chargeability of toners usable in the development of electrostatic latent images in electrophotography is an important factor for giving good image quality. "This chargeability is variable by temperature and humidity conditions, and hence is susceptible to undergo environmental changes, and chargeability of the toners being increased under low temperature, low humidity conditions, and decreased under high-temperature, high humidity conditions, thereby resulting in the deterioration of the image quality." Tajima, col. 1, lines 14-22. Tajima further discloses that it is well known in the toner art that methods for controlling the acid value of polyester resins to 0 to 10 KOH mg/g "sufficiently prevent the

Art Unit: 1756

lowering of the chargeability [of the toner] under high-temperature, high-humidity conditions so that the deterioration of the formed images can be prevented." Tajima, col. 2, lines 1-7. Uchida discloses that when the acid value of the toner is 0.1 to 5 KOH mg/g, the "dependence of electrification on temperature and humidity is lowered, and image fogging, toner scattering, lowering of image density, blur in the image can be restrained." Col. 4, lines 43-49.

Accordingly, it would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tajima and Uchida, to adjust, through routine experimentation, the acid value of the block polyester copolymer (1a) and the non-crystalline polyester resin (2a) component in the toner disclosed by Matsumura, such that the toner and the non-crystalline polyester resin (2a) component have acid values within the ranges recited in instant claims 1 and 21, respectively, and still have the properties required by Matsumura. That person would have had a reasonable expectation of successfully obtaining a toner that exhibits stable chargeability properties even in high temperature and high humidity conditions, and provides good toned images with sufficient density.

Art Unit: 1756

The recitation that the toner in claim 1 is "to be used with a fixing device" as recited in instant claims 36-47 is merely a statement of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). As discussed above, the toner rendered obvious over the combined teachings of Matsumura, Tajima, and Uchida meets the toner compositional limitations recited in instant claims 1 and 36-47. Accordingly, the recitation of the phrase "to be used with a fixing device" in instant claims 36-47 does not distinguish the toner recited in instant claims 36-47 from the toner rendered obvious over the cited prior art.

13. Claims 1-18, 20-23, 31, 33, and 36-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura combined with Tajima and Uchida.

US'920, filed under 35 U.S.C. 371, is the national stage of the WO application of Matsumura, and therefore is presumed to be

Art Unit: 1756

an accurate English-language translation of the WO application of Matsumura. 35 USC 371(c)(2), 372(b), and 365(c). See US'920, the translation of Matsumura, for cites.

Matsumura discloses a second toner comprising 100 parts by weight of toner particles and 1 part by weight of hydrophobic silica particles. The toner particles comprise 100 parts by weight of a polyester binder resin, 1 part by weight of a charge control agent, and 5 parts by weight of a colorant. The polyester binder resin comprises two components: (1b) 8 parts by weight of a polyester block copolymer; and (2b) 87 parts by weight of a non-crystalline, i.e., amorphous polyester resin. In other words, the weight ratio of the polyester block copolymer (1b) to the amorphous polyester resin (2b) is 8:87, which meets the weight ratio ranges recited in instant claims 4 and 19-21. The toner particles have an average particle size of 10 μm , which is within the size limitation recited in instant claim 33. Paragraphs 0309-0312 and Table 7 at page 28, example 20. The amount of the polyester binder resin meets the amount range recited in instant claim 22. The hydrophobic silica particles meet the external additive limitations recited in instant claims 23 and 31. Matsumura discloses that the color of the binder resin is colorless. Table 7, example 20. According to Matsumura, when the block polyester copolymer (1b)

Art Unit: 1756

and the non-crystalline polyester resin (2b) are compatible, the resultant binder resin is colorless. US'920, paragraph 0139.

Thus, the block polyester copolymer (1b) and the non-crystalline polyester resin (2b) are "sufficiently soluble with each other" as recited in instant claim 17.

The block polyester copolymer (1b) itself comprises 20 wt% of a crystalline block and 80 wt% of a non-crystalline, i.e., amorphous, block. The crystalline block is obtained by condensation of 120 moles of the aliphatic diol 1,4-butanediol with 100 moles of terephthalic acid. The crystalline block has a weight average molecular weight of 50,000. The amorphous block is obtained by condensation of 100 moles of dimethyl terephthalic acid with 120 moles of neopentyl glycol as a branched monomer component. The amorphous block has a Mw of 80,000. US'920, Table 7, example 20. Based on the information provided in Table 7, the block copolymer comprises about 28 mole% of the crystalline block, which meets the amount range recited in instant claim 5. The block polyester copolymer meets the block polyester compositional limitations recited in instant claims 5-10, and 14. The block polyester copolymer (1b) has a Mw of 65,000, which is within the range recited in instant claim 13. The block polyester copolymer has a crystal melting

Art Unit: 1756

point of 214°C, which is within the melting point range of 190°C or higher recited in instant claim 11. See Table 7, example 20.

The non-crystalline polyester resin (2b) component of the binder resin is obtained by condensation of 95 moles of dimethyl terephthalic acid and 5 moles of phthalic anhydride with 100 moles of neopentyl glycol as a branched monomer component and 20 moles of ethylene glycol. US'920, Table 7, example 20. The non-crystalline polyester resin (2b) meets the compositional limitations recited in instant claims 3, 15, and 17. The non-crystalline polyester resin (2b) has a Mw of 11,000, which is within the range recited in instant claim 16. See Table 7, example 20. Matsumura further discloses a fixing device which fixes an unfixed toner image on a recording medium where the toner image is formed from the toner in example 20 of Matsumura. US'920, paragraphs 0284-0285 and Table 7, example 20.

Matsumura discloses that the toner exhibits excellent low temperature fixation performance, high temperature offset resistance, and anti-blocking performance. The toner exhibits satisfactory color development. US'920, paragraph 0016 and Table 7, example 20.

Matsumura does not disclose that the non-crystalline polyester resin (2b) component has a crystallinity lower than that of the block polyester copolymer (1b) as recited in instant

Art Unit: 1756

claim 1. Nor does Matsumura disclose that the melting point of the block polyester copolymer (1b) is higher than the softening point of the non-crystalline polyester resin (2b) component as recited in instant claim 2. Nor does Matsumura disclose that the block polyester copolymer (1b) has a heat of fusion as recited in instant claim 12 or the softening point recited in instant claim 20. However, as discussed above, the Matsumura block polyester copolymer (1b) comprises about 28 mole% of a crystalline block and meets the compositional limitations recited in instant claims. The Matsumura non-crystalline polyester resin (2b) component meets the amorphous polyester compositional limitations recited in the instant claims. Accordingly, because the Matsumura block polyester copolymer (1b) and the non-crystalline polyester resin (2b) component meet the compositional limitations recited in the instant claims, it is reasonable to presume that the Matsumura block polyester copolymer (1b) and non-crystalline polyester resin (2b) component have the properties recited in instant claims 1, 2, 12, and 20. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Matsumura does not disclose that the toner in example 20 has an acid value of 8 KOHmg/g or less as recited in instant claim 1. Nor does Matsumura disclose that non-crystalline

Art Unit: 1756

polyester resin (2b) component has an acid value of 3 to 15 KOHmg/g as recited in instant claim 21.

However, according to Tajima, it is well known in the toner art that methods for controlling the acid value of polyester resins to 0 to 10 KOH mg/g "sufficiently prevent the lowering of the chargeability [of the toner] under high-temperature, high-humidity conditions so that the deterioration of the formed images can be prevented." Uchida discloses that when the acid value of the toner is 0.1 to 5 KOH mg/g, the "dependence of electrification on temperature and humidity is lowered, and image fogging, toner scattering, lowering of image density, blur in the image can be restrained." The discussions of Tajima and Uchida in paragraph 12 above are incorporated herein by reference.

Accordingly, it would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tajima and Uchida, to adjust, through routine experimentation, the acid value of the block polyester copolymer (1b) and the non-crystalline polyester resin (2b) component in the toner disclosed by Matsumura, such that the toner and the non-crystalline polyester resin (2b) component have acid values within the ranges recited in instant claims 1 and 21, respectively, and still have the properties required by

Art Unit: 1756

Matsumura. That person would have had a reasonable expectation of successfully obtaining a toner that exhibits stable chargeability properties even in high temperature and high humidity conditions, and provides good toned images with sufficient density.

The recitation that the toner in claim 1 is "to be used with a fixing device" as recited in instant claims 36-47 is merely a statement of intended use. As discussed above, the toner rendered obvious over the combined teachings of Matsumura, Tajima, and Uchida meets the toner compositional limitations recited in instant claims 1 and 36-47. For the reasons discussed in paragraph 12 above, which are incorporated herein by reference, the recitation of the phrase "to be used with a fixing device" in instant claims 36-47 does not distinguish the toner recited in instant claims 36-47 from the toner rendered obvious over the cited prior art.

14. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura combined with Tajima and Uchida, as applied to claim 1 above, further combined with US 6,117,607 (Shimizu), as evidenced by 6,653,040 B2 (Ohba). See US'920, the translation of Matsumura, for cites.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the first toner as described in paragraph 12 above, which is incorporated herein by reference.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the second toner as described in paragraph 13 above, which is incorporated herein by reference.

Matsumura does not exemplify a toner comprising an external additive as recited in instant claims 24-26. However, Matsumura does not limit the type of external additive used in its toner. US'920, paragraph 0207. Matsumura further teaches that its toner can be used as a non-magnetic single-component toner, i.e., as a mono-component developer. US'920, paragraph 0205.

Shimizu teaches a non-magnetic mono-component developer comprising toner particles comprising a polyester resin and external additives. The external additives comprise a negatively chargeable silica particles and positively chargeable silica particles when subjecting the silica particles to triboelectric charging with an iron powder. Col. 3, lines 13-17; col. 4, lines 36-40; col. 12, lines 50-56; Table 1 at cols. 12 and 13; and examples 1-4 in Table 2 at col. 14. The positively chargeable inorganic particles associated with the tradename RA200HS, manufactured by Nippon Aerosil Co., Ltd, and associated with the tradename HVK2150, manufactured by Wacker

Art Unit: 1756

Chemical Co., are identified in the toner art as silica particles. See Ohba, col. 12, lines 50-62. According to Shimizu, "good triboelectric chargeability can be maintained" by using a toner comprising the positively chargeable silica particles and negatively chargeable silica particles. Such a toner provides images with little change in image density after repeated use. Col. 2, lines 56-61.

Shimizu does not exemplify positively chargeable silica particles having an average particle size of 30 to 100 nm as recited in instant claim 26. However, Shimizu teaches that either the negatively chargeable silica particles or the positively chargeable silica particles can have an average particle size of 30 nm or more and 100 nm or less, while the remaining particles have a particle size of 20 nm or less. Col. 4, line 63, to col. 5, line 7. The average particle size range of 30 to 100 nm meets the particle size recited in instant claim 26. Shimizu teaches that "[b]y controlling the average primary particle sizes of the positively chargeable or negatively chargeable silica particles to the given ranges, the effects thereof can be well maintained and sufficient free flowability of the toner can be secured." Col. 5, lines 7-12.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Shimizu, to use

Art Unit: 1756

negatively chargeable silica particles having an average particle size of 20 nm or less and positively chargeable silica particles having an average particle size of 30 to 100 nm as taught by Shimizu as the external additive in the first toner and second toner rendered obvious over the combined teachings of Matsumura, Tajima, and Uchida, because that person would have had a reasonable expectation of successfully obtaining nonmagnetic mono-component developers that have good triboelectric chargeability and sufficient free flowability.

15. Claims 23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura combined with Tajima and Uchida, as applied to claim 1 above, further combined with US 6,146,802 (Okada). See US'920, the translation of Matsumura, for cites.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the first toner as described in paragraph 12 above, which is incorporated herein by reference.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the second toner as described in paragraph 13 above, which is incorporated herein by reference.

Matsumura does not exemplify a toner comprising an external additive where a ratio of the external additive is liberated

from the surface of the toner particles as recited in instant claim 28. However, Matsumura does not limit the type of external additive used in its toner. US'920, paragraph 0207.

Okada teaches adding external additive particles, such as silica particles, to toner particles such that the external additive particles are attached to the toner particles and are liberated from the toner particles. According to Okada, an "inclination," i.e., a ratio of particle sizes of the external additive particles to the particle sizes of the mother particles, i.e., toner particles, "is approximated by a straight line obtained by approximating distribution of particle sizes of the external additives with respect to the particle sizes of the mother particles by a least-square method is not larger than 0.6." Col. 11, lines 30-44. Okada teaches that such a toner exhibits improved fluidity and electrification characteristics regardless of particle size. Col. 10, lines 65-67. Okada further teaches that it is preferable that the amount of liberated silica particles is 5.0 wt% or less. According to Okada, if the amount of liberated silica is large, the silica will cause silica filming on the development roller, the photoconductor, and the intermediate transfer member in an image forming apparatus; and the silica cannot be sufficiently removed by a cleaning blade. Col. 47, lines 23-31. Okada exemplifies

Art Unit: 1756

adding 2.0 parts by weight of silica particles having an average particle size of 10 nm and 0.7 parts by weight of silica particles having an average particle size of 40 nm to 100 parts by weight of toner particles. The resultant toner exhibited an inclination of 0.541 and the amount of liberated silica was 3.72 wt%. The toner exhibited excellent transfer efficiency. Example 5 at cols. 47 and 48, and Table 48 at col. 48, sample 1.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Okada, to externally add the two sizes of Okada silica particles to the first toner and the second toner rendered obvious over the combined teachings of Matsumura, Tajima, and Uchida as taught by Okada such that the resultant toners have an inclination of not larger than 0.6 and 5 wt% or less of the silica particles are liberated from the toner particles. That person would have had a reasonable expectation of successfully obtaining toners that have improved fluidity and electrification characteristics, and good transfer efficiency.

16. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura combined with Tajima and Uchida, as applied to claim 23 above, further combined with US 6,864,030 B2 (Shirai).

Art Unit: 1756

See US'920, the translation of Matsumura, for cites.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the first toner as described in paragraph 12 above, which is incorporated herein by reference. As discussed in paragraph 12 above, the toner in example 19 of Matsumura comprises externally added hydrophobic silica particles.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the second toner as described in paragraph 13 above, which is incorporated herein by reference. As discussed in paragraph 13 above, the toner in example 20 of Matsumura comprises externally added hydrophobic silica particles.

Matsumura does not disclose that the toner particles are coated with the externally added hydrophobic silica as recited in instant claim 30.

Shirai teaches that it is desirable that the coating ratio of the toner with fine inorganic particles, such as hydrophobic silica particles, is from 130-300%, preferably from 150 to 250%. These coating ratio are within the coating ratio range of 100 to 300% recited in instant claim 30. According to Shirai, when the coating ratio is too low, the "storage property" of the toner is lowered. When the coating is too high, the toner "fixing ability is lowered, thereby causing the image fogging." Col. 5, lines 50-51 and 56-58, and col. 6, lines 4-9. Thus, the prior

Art Unit: 1756

art appears to recognize that the coating ratio of fine inorganic particles to toner particles is a result-effective variable. The variation of a result-effective variable is presumably within the skill of the ordinary worker in the art. Shirai further teaches that "the content of the inorganic fine particles is appropriately determined based on the coating ratio of the toner. As one measure, the content is preferably from 0.7 to 5 parts by weight or so . . . based on 100 parts by weight of toner before external addition." Col. 6, lines 32-38. As discussed in paragraphs 12 and 13 above, in examples 19 and 20 of Matsumura, the hydrophobic silica particles are added in an amount of 1 part by weight per 100 parts by weight of toner particles.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Shirai, to adjust, through routine experimentation, the amount of the hydrophobic silica particles added to the first toner and the second toner rendered obvious over the combined teachings of Matsumura, Tajima, and Uchida, such that the resultant toners have a coating ratio of 130 to 300% as taught by Shirai, because that person would have had a reasonable expectation of successfully obtaining toners having sufficient storage property and fixing ability to provide images without fog.

17. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura combined with Tajima and Uchida, as applied to claim 1 above, further combined with US 6,022,661 (Kurose), and US 6,063,537 (Nakamura'537). See US'920, the translation of Matsumura, for cites.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the first toner as described in paragraph 12 above, which is incorporated herein by reference. The toner in example 19 of Matsumura is made by a melt-kneading-pulverization-classification method. US'920, paragraphs 0309-0310.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the second toner as described in paragraph 13 above, which is incorporated herein by reference. The toner in example 20 of Matsumura is made by a melt-kneading-pulverization-classification method. US'920, paragraphs 0309-0310.

Matsumura does not disclose that its toner has a roundness as recited in instant claim 32.

Both Kurose and Nakamura'537 disclose toners having an average degree of roundness of not less than 0.960 and a standard deviation of the degree of roundness of not more

Art Unit: 1756

than 0.040. Kurose, col. 2, lines 64-67; Nakamura'537, col. 2, lines 55-58. Both the Kurose and the Nakamura'537 average degree of roundness is defined as an average of values calculated by the following formula:

Average degree of roundness = (peripheral length of circle equal to projection area of a particle)/(peripheral length of a particle projection image). Kurose, col. 11, line 55, to col. 12, line 3; Nakamura'537, col. 2, line 65, to col. 3, line 13.

The Kurose and the Nakamura'537 formulas meet the circularity formula recited in instant claim 32. The average degree of roundness of not less than 0.960 overlaps the average degree of circularity range of "0.90 to 0.98" recited in instant claim 32.

According to Nakamura'537, an average degree of roundness less than 0.960, or a standard deviation of the degree of roundness exceeding 0.040, "causes degradation in the transferring properties due to a reduction in the fluidity [of the toner], resulting in image losses." Nakamura'537, col. 2, lines 59-62. Both Kurose and Nakamura'537 disclose that toners obtained by a kneading-pulverizing-classification method can be further treated with an instantaneous heating treatment to obtain toners having the average degree of roundness required by

Art Unit: 1756

Kurose and Nakamura'537. Kurose, col. 10, lines 46-51; Nakamura'537, col. 10, lines 38-46. According to Nakamura'537, the "instantaneous heating treatment controls the toner base particles obtained through the kneading-pulverizing method so as to provide a uniform spherical shape, increases the smoothing properties, and reduces the adhesive stress. This makes it possible to provide a toner which is superior in transferring properties, uniformity in electrical charging, and in image-forming performance. . . Fluidity is excellent, uniformity in electrical charge is improved, and a stable durability is ensured for a long time." Nakamura'537, col. 11, lines 33-40 and 55-57. According to Kurose, the "instantaneous heating-treatment controls the toner base particles obtained through the kneading-pulverizing method so as to provide a uniform spherical shape, reduces fine pores appearing on the surface of the toner, and increases the smoothness. This makes it possible to provide a toner which is superior in uniformity in charging and in image-forming performance . . . achieves a stable image-forming performance for a long time." Kurose, col. 11, lines 20-26 and 30-31.

It would have been obvious, in view of the teachings in Yamada, Kurose, and Nakamura'537, to further treat the toner particles in the first toner and in the second toner rendered

Art Unit: 1756

obvious over the combined teachings of Matsumura, Tajima, and Uchida by the instantaneous heat treatment disclosed by both Kurose and Nakamura'537, such that the resultant toner particles have an average degree of roundness of not less than 0.960 and a standard deviation of degree of roundness of not more than 0.040 as taught by both Kurose and Nakamura'537. That person would have had a reasonable expectation of successfully obtaining toners that have superior transferring properties, uniformity in electrical charging, and image-forming performance, and stable durability for a long time, as taught by Kurose and Nakamura'537.

18. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura combined with Tajima and Uchida, as applied to claim 1 above, further combined with US 5,707,772 (Akimoto). See US'920, the translation of Matsumura, for cites.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the first toner as described in paragraph 12 above, which is incorporated herein by reference.

The combined teachings of Matsumura, Tajima, and Uchida render obvious the second toner as described in paragraph 13 above, which is incorporated herein by reference.

Art Unit: 1756

Matsumura does not exemplify a toner comprising a wax as recited in instant claims 34 and 35. However, Matsumura teaches that a releasing agent, such as a wax, may be added to the toner. Matsumura discloses that the wax may be a polypropylene or a polyethylene wax. US'920, paragraph 0194, line 8, and paragraph 0196, lines 2-3.

Akimoto teaches a low molecular weight polypropylene wax that has a melting point between 70 and 150°C. Col. 8, line 66, to col. 9, line 5; and, for example, releasing agent 1 in Table 1 at col. 12. The polypropylene wax is synthesized in the presence of a metallocene catalyst. Col. 11, lines 52-67. Akimoto discloses that toners that comprise said polypropylene wax as a releasing agent provide excellent images with excellent storage stability, little off-set, and "slight winding phenomena." See Toner 1 in Tables 2 and 3, and col. 16, lines 17-18. Akimoto teaches that the amount of the propylene wax added to the toner is preferably 0.5 to 5.0 wt%, more preferably 1.0 to 4.0 wt%, based on the weight of the binder resin. Col. 9, lines 19-21. The toner in example 1 comprises about 3.0 wt% of the propylene wax, based on weight of the binder resin, i.e., about 2.6 wt% based on the total weight of the toner. Col. 12, lines 29-49. According to Akimoto, "[w]hen the added amount is too large, the amount of releasing agent

Art Unit: 1756

existing on the surface of toner, is increased so that fluidity is reduced. On the contrary, when the added amount is too small, the fixing effect cannot be provided." Col. 9, lines 21-25.

It would have been obvious to a person having ordinary skill in the art, in view of the teachings of Matsumura and Akimoto, to incorporate the Akimoto low molecular weight polypropylene wax in an amount that is within the range of 5 wt% or less, e.g., 2.6 wt% based on the weight of the toner, in the first toner and in the second toner rendered obvious over the combined teachings in Matsumura, Tajima, and Uchida. That person would have had a reasonable expectation of successfully obtaining toners that provide excellent images with excellent storage stability, little off-set, and "slight winding phenomena," as disclosed by Akimoto.

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

Art Unit: 1756

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. The rejections in paragraphs 21-24 infra are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

21. Claims 1-20, 22-24, and 30-61 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-65 of copending Application No. 10/687,968 (Application'968).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter in Application'968 renders obvious the toner and fixing device recited in the instant claims.

Reference claim 39, which depends from reference claim 1, recites a toner mainly containing a polyester resin comprising a block polyester copolymer and an amorphous polyester having a crystallinity lower than that of the block polyester copolymer. The toner further comprises a rutile-anatase type titanium oxide, and has an acid value of 8 KOHmg/g or less, which is within the acid value recited in instant claim 1. The block

Art Unit: 1756

polyester copolymer and amorphous polyester meet the block polyester copolymer and amorphous polyester recited in instant claim 1. Reference claims 2-21, which depend from reference claim 1, recite further compositional limitations regarding the block polyester copolymer and the amorphous polyester that meet the limitations recited in instant claims 2-20 and 22, respectively. Reference claim 25, which depends from reference claim 24, which in turn depends on reference claim 23, which depends from reference claim 1, requires that the rutile-anatase type titanium oxide be an external additive in combination with a negatively charged silica, which meets the external additive limitations recited in instant claims 23 and 24. Reference claim 27, which depends on reference claim 23, requires that the coating ratio of the toner particles of the toner to the external rutile-anatase type titanium oxide be in the range of 100 to 300%, which meets the limitation recited in instant claim 30. Reference claim 32, which depends from reference claim 1, requires that the rutile-anatase type titanium oxide be present in an amount that is within the range of 4 wt% or less recited in instant claim 31. Reference claims 35 and 36, each of which depends from reference claim 1, require that the toner have a particular roundness R and particle size, which meet the roundness limitation and particle size limitation recited in

Art Unit: 1756

instant claims 32 and 33, respectively. Reference claims 37 and 38, which depend from reference claim 1, require that the toner further comprise a wax, which meets the wax limitations recited in instant claims 34 and 35. Reference claims 40-47, which depend from reference claim 1, recite that the toner is to be used with a particular fixing device that meets the "intended use" recitation in claims 36-47, to the extent that said recitation is a material limitation. Reference claims 52-65, which depend from reference claim 1, recite a fixing device for fixing the toner of reference claim 1 and an image forming apparatus comprises said fixing device, which meet the limitations of the fixing device and image forming apparatus recited in instant claims 48-61.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application '968, to make and use a toner as recited in the instant claims because that person would have had a reasonable expectation of successfully obtaining a toner that is capable of forming toned images and a fixing device and an image forming apparatus that are capable of forming fixed toned images.

22. Claim 21 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being

Art Unit: 1756

unpatentable over claims 1-39 of copending Application No. 10/687,968 (Application'968).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter in Application'968 renders obvious the toner recited in instant claim 21.

Reference claim 39, which depends from reference claim 1, recites a toner as described in paragraph 21 above, which is incorporated herein by reference. As discussed in paragraph 21 above, the toner claimed in Application'968 has an acid value of 8 KOHmg/g or less, which is within the acid value recited in instant claim 1. Reference claim 20, which depends from reference claim 1, recites that the compounding ratio of between the block polyester copolymer and the amorphous polyester is in the range of 5:95 to 20:80 in weight ratio, which meets the weight ratio recited in instant claim 21.

The claims in Application'968 do not recite that the amorphous polyester has an acid value in the range of 3 to 15 KOHmg/g as recited in instant claim 21. However, as discussed above, reference claim 39 recites that the toner has an acid value of 8 KOHmg/g or less. The upper limit, i.e., 8 KOHmg/g, is within the range of 3 to 15 KOHmg/g recited in

Art Unit: 1756

instant claim 21. The range of 8 KOHmg/g or less overlaps the range recited in instant claim 21.

Thus, because reference claim 39 requires that toner have an acid value of 8 KOHmg/g, it would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'968, to adjust, through routine experimentation, the acid value of the amorphous polyester recited in the claims of Application'968, such that the amorphous polyester has an acid value within the range recited in instant claim 21 and the resultant toner has an acid value as recited in reference claim 39. That person would have had a reasonable expectation of successfully obtaining a toner that meets the limitations required in the claims of Application'968 and that is capable of forming toned images.

23. Claims 1-23, 30, and 33-61 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-54 of copending Application No. 10/687,966 (Application'966) in view of Tajima and Uchida.

Reference claim 1 recites a toner mainly containing a polyester resin comprising a block polyester copolymer and an amorphous polyester having a crystallinity lower than that of

Art Unit: 1756

the block polyester copolymer. The block polyester copolymer and amorphous polyester meet the block polyester copolymer and amorphous polyester recited in instant claim 1. Reference claims 2-21, which depend from reference claim 1, recite further compositional limitations regarding the block polyester copolymer and the amorphous polyester that meet the limitations recited in instant claims 2-20 and 22, respectively. Reference claims 24 and 25, which depend from reference claim 1, require that the toner further comprise a wax, which meets the wax limitations recited in instant claims 34 and 35. Reference claim 27, which depends from reference claim 26, which depends from reference claim 1, requires that the toner comprise an external additive and that the coating ratio of the toner particles of the toner to the external additive be in the range of 100 to 300%, which meets the limitation recited in instant claim 30. Reference claims 29-40, which depend from reference claim 1, recite that the toner is to be used with a particular fixing device that meets the "intended use" recitation in claims 36-47, to the extent that said recitation is a material limitation. Reference claims 41-54, which depend from reference claim 1, recite a fixing device for fixing the toner of reference claim 1 and an image forming apparatus comprises said

Art Unit: 1756

fixing device, which meet the limitations of the fixing device and image forming apparatus recited in instant claims 48-61.

The claims in Application'966 do not recite that the toner has an acid value of 8 KOHmg/g or less as recited in instant claim 1. Nor do the claims in Application'966 recite that the amorphous polyester has an acid value of 3 to 15 KOHmg/g as recited in instant claim 21.

However, according to Tajima, it is well known in the toner art that methods for controlling the acid value of polyester resins to 0 to 10 KOH mg/g "sufficiently prevent the lowering of the chargeability [of the toner] under high-temperature, high-humidity conditions so that the deterioration of the formed images can be prevented." Uchida discloses that when the acid value of the toner is 0.1 to 5 KOH mg/g, the "dependence of electrification on temperature and humidity is lowered and image fogging, toner scattering, lowering of image density, blur in the image can be restrained." The discussions of Tajima and Uchida in paragraph 12 above are incorporated herein by reference.

Accordingly, it would have been obvious for a person having ordinary skill in the, in view of the subject matter claimed in Application'966 and the teachings of Tajima and Uchida, to adjust, through routine experimentation, the acid values of the block polyester resin and amorphous polyester in the toner

Art Unit: 1756

covered by the claims of Application'966, such that the toner and the amorphous polyester have acid values within the ranges recited in instant claims 1 and 21, respectively. That person would have had a reasonable expectation of successfully obtaining a toner that exhibits stable chargeability properties even in high temperature and high humidity conditions, and a toner, a fixing device, and an image forming apparatus that provide good toned images with sufficient density.

24. Claims 1-23 and 32-61 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-96 of copending Application No. 10/701,372 (Application'372) in view of Tajima and Uchida.

Reference claim 67, which depends from reference claim 55, which depends from reference claim 1, recites a toner mainly containing a polyester resin comprising a block polyester copolymer and an amorphous polyester having a crystallinity lower than that of the block polyester copolymer, where the amorphous polyester has a weight average molecular weight in the range of 5×10^3 to 4×10^4 . The block polyester copolymer and amorphous polyester meet the block polyester copolymer and amorphous polyester recited in instant claims 1 and 16.

Reference claims 35-52, which depend from reference claim 1,

Art Unit: 1756

recite further compositional limitations regarding the block polyester copolymer and the amorphous polyester that meet the limitations recited in instant claims 2-20 and 22, respectively. Reference claim 56, which depends on reference claim 55, requires that the toner have an average particle size in the range of 1 to 20 μm , which overlaps the range of 3 to 12 μm recited in instant claim 33. Reference claim 58, which depends on reference claim 55, requires that the toner have an average roundness R of 0.91 to 0.98, which is within the range of 0.90 to 0.98 recited in instant claim 32. Reference claims 64 and 65, which depend from reference claim 55, require that the toner further comprise a wax, which meets the wax limitations recited in instant claims 34 and 35. Reference claim 68, which depends from reference claim 55, requires that the toner comprise an external additive as recited in instant claim 23. Reference claims 69-80, which depend from reference claim 1, recite that the toner is to be used with a particular fixing device that meets the "intended use" recitation in claims 36-47, to the extent that said recitation is a material limitation. Reference claims 81-94, which depend from reference claim 1, recite a fixing device for fixing the toner of reference claim 1 and an image forming apparatus comprises said fixing device,

Art Unit: 1756

which meet the limitations of the fixing device and image forming apparatus recited in instant claims 48-61.

The claims in Application'372 do not recite the toner has an acid value of 8 KOHmg/g or less as recited in instant claim 1. Nor do the claims in Application'372 recite that the amorphous polyester has an acid value of 3 to 15 KOHmg/g as recited in instant claim 21.

However, according to Tajima, it is well known in the toner art that methods for controlling the acid value of polyester resins to 0 to 10 KOH mg/g "sufficiently prevent the lowering of the chargeability [of the toner] under high-temperature, high-humidity conditions so that the deterioration of the formed images can be prevented." Uchida discloses that when the acid value of the toner is 0.1 to 5 KOH mg/g, the "dependence of electrification on temperature and humidity is lowered and image fogging, toner scattering, lowering of image density, blur in the image can be restrained." The discussions of Tajima and Uchida in paragraph 12 above are incorporated herein by reference.

Accordingly, it would have been obvious for a person having ordinary skill in the, in view of the subject matter claimed in Application'372 and the teachings of Tajima and Uchida, to adjust, through routine experimentation, the acid values of the block polyester resin and amorphous polyester in the toner

Art Unit: 1756

covered by the claims of Application' 372, such that the toner and the amorphous polyester have acid values within the ranges recited in instant claims 1 and 21, respectively. That person would have had a reasonable expectation of successfully obtaining a toner that exhibits stable chargeability properties even in high temperature and high humidity conditions, and a toner, a fixing device, and an image forming apparatus that provide good toned images with sufficient density.

25. Claims 48-50, 52-55, and 57-60 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 5,839,537 B2 (Mouri).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in Mouri renders obvious the fixing device recited in the instant claims.

Reference claim 1 recites a fixing device comprising a fuser, i.e., fixing, roller, a pressure roller to press against the fixing roller, and peeling members, i.e., releasing members, which are arranged on the downstream side in a recording medium feeding direction relative to the fixing nip portion to extend in the axial direction of the fuser roller and the pressure

Art Unit: 1756

roller, respectively. The positioning of the peeling member for the fuser roller is conducted on the surface of the fuser roller, and the positioning of the peeling member on the pressure roller is conducted on the "surface of bearings for the pressure roller." The fixing device meets the limitations recited in instant claims 48, 49, 52, 53, and 58. Reference claims 2-8, which depend on reference claim 1, require that the fixing device satisfy particular limitations that meet the limitations recited in instant claims 54, 55, 57, 59, and 60.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Mouri, to make and use a fixing device comprising the structural components recited in the instant claims because that person would have had a reasonable expectation of successfully obtaining a fixing device that is capable of fixing a toner image onto a recording medium.

Mouri does not recite in its claims the functional limitation that the fixing device has a recording medium feed speed of 0.05 to 1.0 m/s recited in instant claim 50. However, "[a] claim containing a 'recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus' if the prior art apparatus teaches all the structural

Art Unit: 1756

limitations of the claim." MPEP 2114 and cases cited therein. Accordingly, the functional language regarding the feed speed recited in the instant claim does not distinguish the apparatus claimed in Mouri.

Mouri does not recite in its claims the particular toner recited in the instant claims. However, the instant claims do not positively recite that the fixing device or the image forming apparatus comprises the particular toner. Instant claim 48 merely recites a "fixing device for fixing the toner claimed in claim 1 onto a recording medium." For the reasons discussed in paragraph 11 above, the particular toner recited in instant claim 48 does not distinguish the structural elements in the instantly claimed fixing device or image forming apparatus from those in the fixing device and apparatus in Mouri.

26. Claims 27 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest a toner comprising the polyester resin recited in instant claim 1 and further comprising externally added positively chargeable silica "obtained by treating silica gel with a silane coupling agent

Art Unit: 1756

having an amino group" recited in instant claim 27. Nor does the prior art of record teach or suggest a toner comprising the polyester resin recited in instant claim 1 and further comprising external additive wherein the ratio of the external additive liberated from the surface of the toner particles is 5 wt% or less and "at least a part of the external additive liberated . . . functions as a micro carrier to be charged with polarity opposite to that of the toner particles" recited in instant claim 29, which depends from instant claim 28 and which, therefore includes all the limitations recited in instant claim 28.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/687,929

Page 50

Art Unit: 1756

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1800
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JLD

Jun. 27, 2005